Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NEW FOSSILS FROM THE FOUR GROUPS OF THE NIAGARA PERIOD OF WESTERN NEW YORK.

BY EUGENE N. S. RINGUEBERG.

MEDINA GROUP.

Sphirophyton archimedes (n. sp.). Pl. II, fig. 1.

Frond large, thick; growing in loose spirals that gradually decrease in size from below upwards; about two coils occur in the space of the diameter.

Surface on both sides crossed by broad, irregular, gently undulose, wavy plications, which radiate from the centre out towards the obtuse rounded margins in subspiral curves, which traverse about one-fourth of the coil, following the general spiral growth, which is sinistral.

This fucoid is specially remarkable for its thickness and loose spiral growth. It differs from those figured by Hall by growing in decreasing spirals instead of expanding from below up.

From the upper friable bands of the Medina sandstone at Lockport.

CLINTON GROUP.

TRIACRINUS (n. gen.).

Calyx symmetrical, subelongate, ovoid to pyriform.

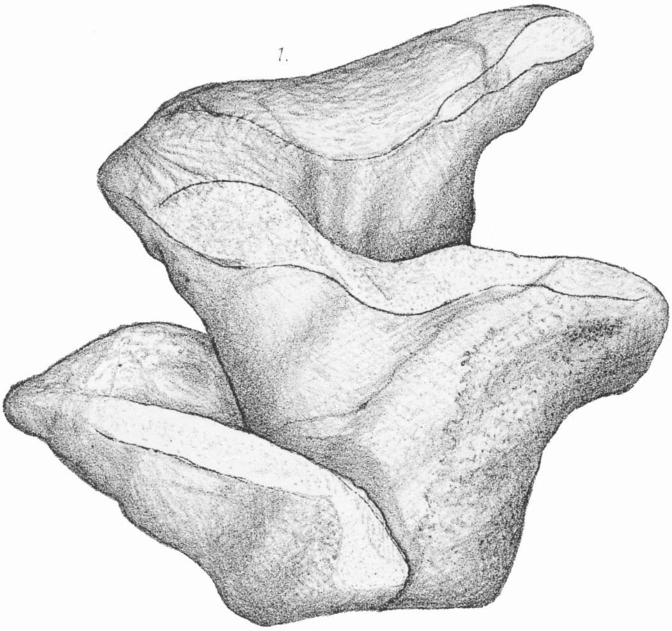
Basals five, arranged in a bilaterally symmetrical series, the median of which is placed to the right of the anal, and is pentagonal; the two next on either side are low quadrangular, and the outer adjoining two, which are wider than the others, are pentagonal and have their superior apices directed away from each other.

The second ring is tripartite and comprised of the large anal and the lower elongated and expanded portion of the two lateral anterior radials.

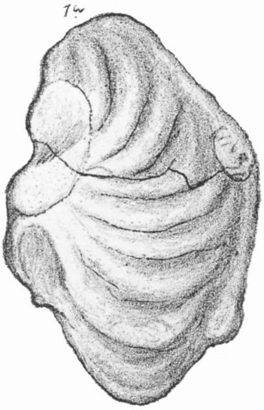
Anal very large, forming nearly one-third of the circumference of the calyx; equilaterally heptagonal; it rests on one of the quadrangular radials and laterally against the sloping sides of two adjacent pentangular ones.

The third or true radial ring is equally quinquepartite and has with the second ring—which is really but a modified portion of the third—a bilateral symmetry, but differing from that of the

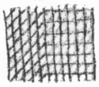
1.



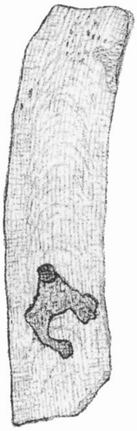
1a



2a

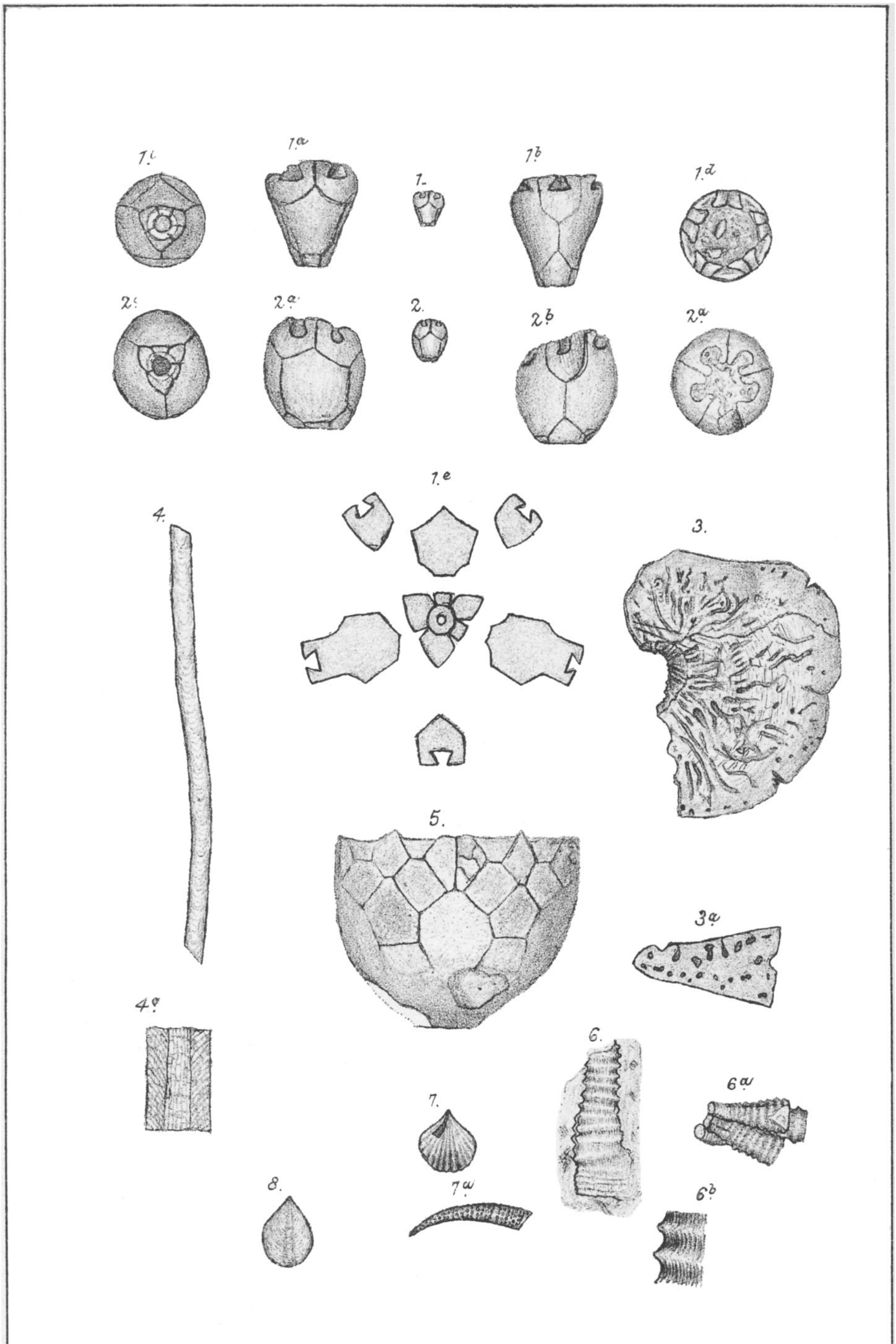


2.



E.N.S.R. DEL.

RINGUEBERG, FOSSILS OF NIAGARA PERIOD.



E.N.S.R. DEL.

RINGUEBERG, FOSSILS OF NIAGARA PERIOD.

basals in its axis, which is governed by the anal. Plates five, three small and two large, of subequal sizes; upper portion incurved so as to form part of the brim of the dome; deeply excavated above in the incurved portion, with dove-tailed notches to receive the brachials; first two radials on the posterior side small, resting on the sloping sides of the anal and the posteriorly expanded portion of the next radials; lateral radials much elongated, so as to rest upon the basals; and have the elongated portion much expanded, especially anteriorly, where they meet under the anterior radial: anterior radial small, supported by the lateral radials upon their expanded portion, which in the dextral one is supported by three basals like the anal, while the other rests on the two wider pentagonal basals and consequently has an acute inferior angle instead of a truncate one.

This anomalous genus should probably be placed next to *Hybocrinus* with which it has some slight affinity.

So far found only in the Clinton Group.

Triacrinus pyriformis (n. sp.). Pl. III, fig. 1.

Calyx small, subpyriform.

Base broad, truncate, with a slight, flat, wide depression to receive the column which was here evidently about as broad; leaving only a fine sharp projecting marginal ring.

Height to width as three to two.

Basals medium; first to the right of anal; acutely pentagonal, height and width about equal; the quadrangular plates are about one-half as high as the pentagonal ones; height to width as one to two; the two adjoining pentagonal plates are as high as the other, and are wider than high; extending nearly half way around the basal ring.

Second ring equally trichotomous. Anal large, slightly wider than high.

First two posterior radials medium, obversely equiform with their lower and external lateral sides curving outwards; lateral large radials slightly expanded posteriorly and widely anteriorly; anterior radial equilateral, with lateral angles fitting into the expanded radials upon which it rests. The wide dove-tailed incisions to receive the brachials are about two-thirds as wide as the upper part of the plates, at their lower expanded portion; above which point the upper part of the plate is rather abruptly incurved. Height three-eighths inch. From the limestone of the upper portion of the Clinton Group at Lockport.

Triacrinus globosus (n. sp.) Pl. III, fig. 2.

Calyx small, globosely subovoid; base large, deeply excavated with rounding margins; sides evenly rounding from the base to the lateral apices of the incurved projections of the radials.

Basals incurved to receive the column, low at the sutures; quadrangular basals very low, height to width as one to three; about one-half of their height is incurved into the excavated base.

Anal large, almost as high as wide.

Expanded portion of the lateral radials wide, forming more than two-thirds of the second ring.

Anterior radial evenly rounding from the lateral sides to an acute inferior angle.

Expanded portion of the brachial notches about one-half as wide as the plate at that point.

The specific features of this species in comparison with the other, are the ovoid calyx, much more deeply excavated and rounded base, narrower brachial notches in the radials, and the evenly rounded sides of the small anterior radial. Height same as last species; width nearly equal to the height. The specimen from which the description is taken is slightly distorted by pressure.

Locality and group the same as *T. pyriformis.*

Stictopora obliqua (n. sp.) Pl. II, fig. 2.

Flat, large, broad and long, of equal width; with a central band of upward-curving rounding lines of growth, which are irregular in distance from each other, and as regards strength; they occupy from one-third to one-half of the surface, and are sometimes deflected slightly to one side or the other; the outer ends of these striæ of growth gradually disappear as they curve downwards and approach each other upon the flat, unstriated margins; but occasionally one or two striæ are more prominent than the rest, and extend further downwards and outwards.

Cells arranged in longitudinal and rectangular transverse rows on the unstriated marginal thirds; from which point the transverse rows are deflected downwards, and meet with a rounding curve in the central portion.

The cells of the outer portions are sub-rhombic, with an outward inclination of their outer upper corners; deflected rows of cells rhomboid, becoming gradually quadrangular towards the centre.

FUNGISPONGIA (n. gen.)

Flattened; spreading from a fixed point; thinning out at the margin.

From the attached portions, numerous perforations, with smooth walls, radiate and branch out with many bifurcations and anastomoses in all directions towards the periphery, having numerous communications with the outer surface, which is quite smooth.

Fungispongia irregularis (n. sp.) Pl. III, fig. 3.

Flat, rather thin, irregularly spreading from a lateral or excentric point of growth. Surface moderately convex; rather abruptly beveled off to a sharp margin, which is somewhat irregular in contour. Internal structure consisting of small, closely arranged radiating perforations, which, though apparently of a quite regular circular form separately, are very irregular in section, in consequence of the frequent bifurcations and intercommunications occurring in their outward course. They do not always open directly upon the rather smooth surface, but are directed outwards towards the margin and frequently end in furrows on the outside.

The specimen from which this description is taken, is somewhat weathered in the central part, so as to well show its structure. From the siliceous bands of the Clinton at Lockport.

NIAGARA TRANSITION GROUP.

Stictopora graminifolia (n. sp.). Pl. III, fig. 4.

Very long and narrow, ribbon-like; width one-eighth inch, even throughout, flat on the noncellular and slightly convex on the cellular side.

The striæ of the lines of growth are abruptly arched in the centre, where they are accompanied by undulations of the surface having the same general curve, but which are confined to the central portion; the striæ grow more crowded as they gradually approach the margin, which they continue to do for a distance about equal to the width of the flat surface, where they become lost just before reaching it by being merged with others in common longitudinal striæ, which extend some distance down the side before they become finally lost.

Central third occupied by five or six longitudinal rows of cells, which continue throughout its entire length; from these the lateral cells are directed in nearly straight lines obliquely outwards and upwards towards the margins, at an acute angle. Cells twice as long or longer than their width and are arranged irregularly in the rows, without any apparent order.

The length of the specimen is two and one-fourth inches, which was not its entire length, several fragments having been lost off either end.

From the compact, fine-grained Niagàra Transition Group limestone, which was described by me in the *American Naturalist*, Sept., 1882, at Gasport.

Niagara Group.

Eucalyptocrinus inconspectus (n. sp.). Pl. III, fig. 5.

Calyx large, cup-shaped, wide, upper part with perpendicular sides; base rounding, obconical with a small excavation to receive the column.

Column and arms unknown.

Surface finely rugose; rugæ giving evidence of irregular radiations from the centre of the larger plates.

Basals concealed within the depression to receive the column. First radials medium, rapidly expanding. Second radials large, as high as wide. The rest of the plates, excepting the elongate interradials and interbrachials, wider than high. Radial plates, with the exception of the second, flattened or even slightly depressed, slightly wider than high.

This species may be distinguished from *E. crassus* by the, comparatively, very shallow basal excavation which receives the column; also by the finely rugose surface-markings, the rounding base and nearly parallel sides at the upper part of the calyx. And from *E. decorus* by the longer calyx and surface-markings.

From the Niagara limestone at Lockport.

Cornulites contractus (n. sp.). Pl. III, fig. 6.

Shell much elongated, cylindrical or subcylindrical, very gradually tapering; regularly sharply annulate; longitudinally finely striate.

Growing attached to foreign bodies or in groups when young.

Annulations very sharply defined, equidistant; about five to one-fourth inch in the larger specimens; they rise by an even curve from the rounded, contracted, inter-annular spaces and form sharp angular annulations.

Longitudinal striations prominent, closely arranged, and are strongest at the bottom of the trough-like depressions, having there the appearance of being minute plications produced by the contraction; they grow fainter at the apex of the annulations, but continue over them to the next. The sloping sides of the annulations sometimes bear one or two inconspicuous annulations which do not interfere with the contour of the shell.

The prominence and regularity of the annulations in the older portions of the shell will serve to distinguish it from *C. proprius*, with which it is associated, and to which it sometimes bears a superficial resemblance in the younger attached part.

From the Niagara shale at Lockport.

Cornulites nodosus (n. sp.). Pl. III, fig. 7.

Shell small, elongate, tapering gradually to an attenuate, very sharp apex.

Growing on small foreign bodies; attached throughout. Surface smooth, ornamented by numerous closely arranged nodes, which increase in size as the shell enlarges, and are placed in regular rows across it; the terminal ones being somewhat elongate and attached to the surface upon which it grows.

The largest specimen found measures five thirty-seconds of an inch in length.

From the Niagara shale at Lockport.

Lingula bicarinata (n. sp.) Pl. III, fig. 8.

Shell small, ovoid in outline; beak very acute; transverse diameter widest half way from the beak; valves evenly rounding, convex; with two hardly perceptible parallel median ridges commencing at the beak and extending to the outer margin, widening regularly as the shell increases in size.

Concentric striæ fine, even, increasing regularly by several bifurcations.

From the Niagara Shale at Lockport.

The specimens described were all collected by myself, and the types are in my collection.

EXPLANATION OF PLATES.

PLATE II.

1. *Spirophyton archimedes* (n. sp.)
   Two whorls of a large specimen, natural size.

1 *a*. Lower side of a part of a smaller frond, showing more plainly the subspiral undulations.

2. *Stictopora obliqua* (n. sp.)
   Natural size.

2 *a*. A small portion of it enlarged, showing the oblique downward curve of the transverse rows ; three diameters.

PLATE III.

1. *Triacrinus pyriformis* (n. gen. et sp.) ; natural size.
   a. Posterior side ; enlarged three diameters.
   b. Anterior side ; enlarged three diameters.
   c. Basal view ; enlarged three diameters.
   d. Upper side ; enlarged three diameters.
   e. Diagram of plates.
2. *Triacrinus globosus* (n. sp.)
   The lettering of the figures same as last.
3. *Fungispongia irregularis* (n. gen. et sp.)
   a. Section ; enlarged three diameters.
4. *Stictopora graminifolia* (n. sp.)
   a. Portion ; enlarged three diameters.
5. *Eucalyptocrinus inconspectus* (n. sp.)
6. *Cornulites contractus* (n. sp.)
   a. A group of three individuals growing together.
   b. Surface of 6 ; enlarged three diameters.
7. *Cornulites nodosus* (n. sp.)
   a. Same individual ; enlarged three diameters.
8. *Lingula bicarinata* (n. sp.)
   Interior of valve.